

# CURSOR™

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The Cursor Group

THE TINY MICRO COMPUTER NEWS SERVICE

VOLUME I

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ISSUE 6

## WHAT'S NEW

BY

FRED CORNETT  
MANAGING EDITOR

I recently realized that what has been obvious to the Cursor staff may be totally unknown to our readers! In an attempt to alleviate that situation, I have compiled the following notes:

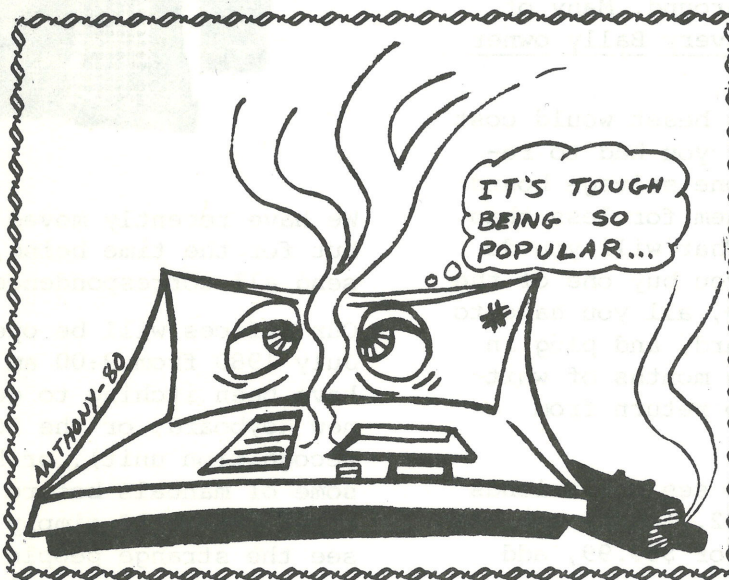
### 1. Advertisements:

We do not charge any monetary fee for material placed in our "Classifieds". We do, however, require the advertiser to submit a copy of the advertised product for our review. Upon receiving such material, we make sure it meets our minimum criteria for publication. Example: if the product is software, we check it for (a) Originality, (b) Documentation, (c) Price, (d) Performance, (e) Overall Quality. IF the product is satisfactory to our staff, we require one additional thing from the advertiser; he must submit a program to be printed in its entirety in Cursor. "What does this do for our readers?" you ask! Cursor policy guarantees you won't pay \$12 for a poorly made "Tic-Tac-Toe". We do not print advertisements for what we consider to be inadequate overpriced junk.

2. New Cursor Products: We have been steadfastly working on bringing you three items.

A. Memory Add-On. We have been and are currently working on a 48K (32K addressable) "Add-On". This unit will pro-

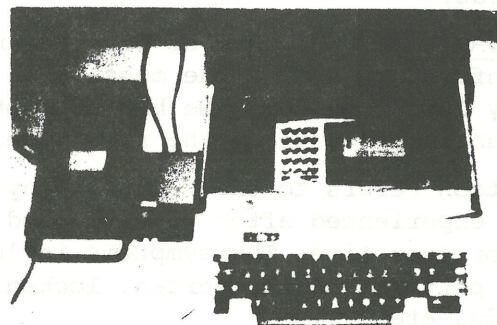
vide a Higher Level Language! The Bally Tiny Basic is incapable of using any additional memory except by "Peek n' Poke". So, memory expansion is rather useless unless a language is provided to address the add-on memory. The unit will have provisions for Disk and much, much more. The Unit should be available by the end of summer!!



B. Printer. We are in negotiations with "BASE 2" to receive an "OEM" quantity price for their very excellent printer. Our goal is \$450 (which is \$200 less than in the stores). BASE 2 is: tractor fed, dot matrix, IMPACT printer (uses standard paper and forms up to 9 inches wide), high speed paper advance, 2K buffer for graphics and various type fonts. We expect to have it available by the August issue.

NOTE: We have hesitated to mention these items in print until we have the items in our hands. I HATE EMPTY PROMISES!!!

C. Full Sized ASCII Keyboard.



We have prototyped a "selectric" type keyboard to include all standard features

MAIL ADDRESS: P.O. BOX 266, NORTH HOLLYWOOD, CA 91603

BUSINESS ADDRESS: 6115 CLYBOURN, SUITE 25, NORTH HOLLYWOOD, CA 91606 • (213) 763-7701



plus custom engraved keys for the "comm- and words" (i.e., GOTO, INPUT, etc.). This keyboard eliminates the need to press two keys to get one character.

We will offer this keyboard as a complete finished unit (not a kit) for approximately \$125.00. This is a very reasonable price! The CURSOR Keyboard compares to the Cherry "PRO" being sold for \$119. which will not work with our Bally unless you add roughly \$40. in additional parts plus labor. Our keyboard is expected to be available in August.

If you are interested in adding this keyboard to your Bally, you **MUST** call us or drop us a line as soon as possible, so we will know what quantity to manufacture.

3. Mother Boards: The Bally mother boards we advertised in the June issue seem to be the hottest item around. Many of you are unaware of why every Bally owner should buy at least one.

The custom chips on this beast would cost you \$34. individually if you had to replace one or more. Buy one salvage board at \$24.99 and you get them for less than the price of one chip. What will you do if your unit dies? If you buy one of the working boards at \$69.99, all you have to do is unplug the bad board, and plug in the new one! Eliminating months of waiting for your computer to return from Chicago!

Many of us would like to see our friends buy a Bally, but the \$322. tag is too high. Buy the complete board for \$69.99, add \$30. in parts, and they have the unit. Many of our readers have bought the boards for friends and are planning on adding our FULL SIZED ASCII Keyboard to go with it. Some are doing multi-processing with two boards.

3. FEBRUARY CARTOON: Many of our readers were confused regarding the message in the February Cursor cartoon. We had attempted to be subtle and cute at the same time.

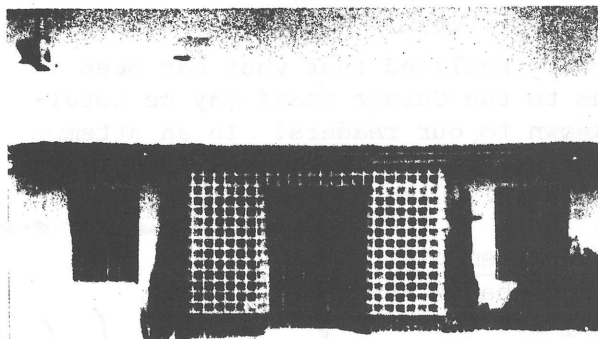
The cartoon refers to the trouble many of us have experienced after we have used our Bally for some time. The symptoms include strange patterns on the screen, locked keyboards, etc.

Our cartoon attempted to tell you that 99.9% of this type of problem is directly attributable to "heat damage". This situation is almost always eliminated by re-

moving the RF Shields which completely encase the mother board.

The FCC required Bally to manufacture the unit with shields, much to the dismay of Bally. (Bally cannot recommend you to remove these shields nor can I, since we would get in trouble with the FCC, as it could cause interference on a neighbors TV). If you want to experiment, the instructions for removal are contained in the Bally Service Manual, available from CURSOR at \$2.75.

#### 5. OPEN HOUSE:



We have recently moved into new offices, but for the time being, please continue to send all correspondence to our PO Box.

Our offices will be open on Saturday, 26 July 1980 from 9:00 am to 7:00 pm. If you have been itching to get your hands on the new keyboard, or the "Computer Ear" (voice recognition unit), or have wanted to see some of manuals before you invest in them, or if you would simply like to drop by and see the strange people at CURSOR, and trade some programs, we would love to see you!!! Coffee, tea, softdrinks and munchies will be provided.

#### NEW ADDRESS

59 East Orange Grove., Burbank, CA 91502



#### ARCADE GOLF

BY

MIKE MASLOWSKI

EDITOR'S NOTE: This is one of the most innovative programs that we have seen written for Ballys' 2K. This game utilizes graphics; allows you to select from 14 clubs, has doglegs, water hazards, sand traps, roughs, wind effect, and penalties. If you play Golf, this program is a must! If you don't, this program will turn you into a "hacker" in no time at all.



## PLAY INSTRUCTIONS:

Golf is a one to four player game lasting 1-99 holes (selectable). Each hole will be different. Start with just a few holes until you get the hang of it.

### ALL PLAYERS USE HAND CONTROLLER #1

To start the match, enter the number of Golfers and number of holes to be played. You will then be asked how hard you want the course layout to be. One (1) is the easiest and ten (10) the most difficult. The higher the number you enter, the higher the probability of sand traps and dog-legs. The last question asked is the average wind speed for the day. The harder the wind is blowing, the more it will affect the flight of your shots, particularly on hits. Until you get the hang of the game, it's best to set wind speed to zero (0).

Before playing golf for the first time, Hand Control #1 must be calibrated. This can be done by keying in this one line calibration program prior to loading the Arcade Golf program.

```
10 PRINT KN(1);GOTO 10
```

Adjust the knob for zero and mark this position so that the knob is lined up with the trigger (zero position points to trigger). You can draw a small line or arrow on the top of the knob to do this. A small arrow or line from a dry transfer set does a nice permanent and professional looking job.

To select a club, pull back on the joystick and turn the knob until the proper club appears on the screen (See chart of clubs and ranges). To gauge the force of your swing, move the joystick forward and turn the knob until the desired force (0-4) is displayed. Zero is the low end of the clubs' range, and 4 is the high end.

After club and force are selected, set direction of the hit by turning the knob with the joystick in it's neutral position. When the arrow on the top of the knob is pointing at the trigger, the ball will go straight (towards the right of the screen). To angle the ball left (toward top of screen), turn the knob to the left; to angle right (toward bottom of screen), turn the knob to the right. The direction will vary from straight towards the right of the screen to straight up(left) or straight down (right). You cannot hit backwards.

NOTE: The entire working range of the knob is about 1/4 turn, therefore even very small changes in the knob position affect direction.

## PENALTY STROKES:

If your ball travels off the fairway there is a one stroke penalty for hitting from the rough. Over the green and running the entire width of the fairway is a lake. If you hit in the lake, the ball will be dropped in front of the green and a one stroke penalty is added.

Once you get on the green your turn is over. You will have 2, 1 or 0 putts added to your stroke total, depending on whether you landed somewhere on the green, very close to the hole, or in the hole. Pull back on stick to set up next hole.

NEW GAME: Press "GO" on keypad to start a new game.

<u>CLUB</u>	<u>RANGE</u>
P = Putter	8 - 24
C = Chipper	26 - 42
S = Sand Iron	44 - 60
W = Wedge	62 - 78
9 = 9 Iron	80 - 96
8 = 8 Iron	98 - 114
7 = 7 Iron	116 - 132
6 = 6 Iron	134 - 140
5 = 5 Iron	152 - 168
4 = 4 Iron	170 - 186
3 = 3 Iron	188 - 204
2 = 2 Iron	206 - 222
F = Fairway Wood	224 - 240
D = Driver	242 - 258

## GOLF INITIALIZATION STATEMENT PROGRAM

To squeeze all of Arcade Golf into 1800 bytes, array elements and screen colors are initialized using immediate instructions (no line numbers). To get these instructions stored on tape, a small program (the Golf Initialization Statement Program) was written. This program writes initialization statements to tape when "GO" is pressed.

Until Arcade Golf is running properly, it is wise to store the initialization statements on a separate tape. The separate tape must be loaded after Arcade Golf and also following any changes to the Arcade Golf program. The reload is required after changes because array locations are dependent on program size (array values are unpredictable when program size changes).

Once Arcade Golf is keyed in correctly, record the initialization statements immediately following Arcade Golf.

## PROGRAM DOCUMENTATION

```
10 Initialize game variables
```



```

20 Input game parameters
50 Increments hole # & checks for
  End of Game
55- 65 Load hole variables w/new config-
  uration using RND numbers
100-130 Generate hole graphics for all Pl.
SWING ROUTINE:
150 Loops through CLUB/FORCE/WIND sub-
  routine until TR(1)
155 Length of hit calculated from club
  & force var. Angle of hit determi-
  ned by KN position
160 Trig subrt. called to determine XY
  co-ordinates of shot
165-170 Check penalties. N=1 for ball in
  rough, N=2 in lake, N=3 in sand. If
  ball in letter graphics, move to
  fairway edge; in lake, ball is
  dropped in front of green.
172 Check for ball on green.
179 Draw flight of ball, display any
  penalty message(sub590+N) add to
  stroke count of ball not on green
180 If ball not on green, go to SWING
ON GREEN:
185-190 Calculate # of putts based on dis-
  tance from hole
195 Display strokes and putts for hole
200 Update total stroke counters
205 Wait until joystick off center
210 If last player, GOTO NEW HOLE rout.
215 More players, GOTO Gen.hole Graph.
CLUB/FORCE/WIND Subroutine
500 If joystick forward, convert KN va-
  lue to force 0-4 & update screen
505 If joystick back, convert KN value
  to club 0-13 & update screen(1 is
  added to club var. to correspond
  to array elements 1-14).
510 Calculate wind speed within 5MPH
  of average originally input.
515 Display wind speed
COSINE TRIG Subroutine
530 Angle is passed in var. Z. 2 digit
  cosine resulting from cosine appro-
  ximation calculation is ret. in Z.
STROKE COUNT Subroutine
560 Update stroke count
570 Display new stroke count
SAND TRAP Subroutine
580 Displays Sand Trap on Left or
  Right side of green depending on
  Value in I.
PENALTY MESSAGE Subroutine (590+N)
590 N=0 Shot OK CLEAR previous statmnt.
591 N=1 Rough
592 N=2 Lake
593 N=3 Sand
594 N=4 On green, just return

```

## VARIABLE INDEX

```

A=Length of hole 100-565 yards
B=Number of players 1-4
C=Club Selection 0-13
D=Left Sand Trap flag, if on trap is created
E=Right Sand Trap flag, if on trap is created
F=Force of swing 0-soft TO 4-hard
G=Current hole number
H=Total number of holes to be played
I=Work variable, used as loop counter and
  for par passing
J=Y co-ordinate of tee
K=Angle of hit 0 degree-90 degree
L=Length of hit
M=Difficulty factor 0-easiest 10-hardest
N=Work variable, used as loop counter, sto-
  rage of temporary values i.e., ± direction,
  penalty message number
O=Par for current hole
P=Current player number 1-4
Q=X co-ordinate of hole
R=Y co-ordinate of hole
S=Current stroke count
T=Number of puts
U=Dogleg flag, if on dogleg is created
V=X direction size of dogleg rough
W=Current wind speed
X=X co-ordinate of ball
Y=Y co-ordinate of ball
Z=Work variable used to hold temporary val-
  ues and pass parms to subrtm (i.e., passes
  angle to co-size subrtm which rtns 2-digit
  cosine in Z)
@(1) -@(14)=An ASCII representation of club
  selection (see chart).
@(15)-@(18)=Total scores for players 1-4
  @(19)=Average wind speed
  @(20)=Wind direction
  @(21)=Total par

```

NOTE: AFTER LOADING, GOLF REQUIRES SZ=43 TO RUN (21 ARRAY ELEMENTS X2)+1. IF YOU DON'T HAVE THAT MANY BYTES LEFT, YOU HAVE NOT COPIED THE PROGRAM EXACTLY AS WE HAVE PRINTED IT, GO BACK AND CHECK FOR ERRORS!!!

## ARCADE GOLF

BY

MIKE MASLOWSKI

```

10 CLEAR ;G=0;FOR I=15TO 21;@(I)=0;NEXT I;
  CY=0;CX=-11;PRINT "GOLF"
20 INPUT "# GOLFERS?"B,"# HOLES?"H,"COURSE
  EASY→1 TO HARD→10?"M,"WIND SPEED?"@(19)
50 G=G+1;IF G>H CY=0;CX=-77;PRINT #3,"FI
  NAL PAR",@(21);Z=KP;GOTO 10
55 A=RND (465)+100;Q=RND (9)+60;R=RND (9)-
  5;J=RND (41)-21;O=3;IF A>250IF A<470O=4
56 IF A>469O=5
60 P=1;@(21)=@(21)+O;D=0;IF RND (10)<M D=1

```







## SHELL-METZNER SORT

BY

MATT GIWER

We published a "Bubble Sort" in our February issue by Tim Hays. The purpose of a sort is to put numbers in an ascending numerical order, which could have many applications. Many types of sorts exist, but the two most widely in use are the "Bubble Sort" and the "Shell-Metzner".

Programmers are often faced with hard decisions. The most common problem is the selection between efficiency and brevity.

The Bubble Sort uses less memory than the Shell-Metzner. However, the Bubble Sort is terribly innefficient. If we had a list of thousands of numbers to sort, the Bubble Sort would take literally hours longer than the Shell-Metzner.

We suggest you try both of them, and make up your own mind.

```
10 NT=0; CLEAR ; INPUT "HOW MANY NUMBERS?" N
  ; J=N
20 FOR I=1 TO N; PRINT #5, I, "#-----?"; INPUT
  T " "(I); J=J-1; NEXT I
30 PRINT "SORTING"; M=N
40 M=M/2; IF M=0 GOTO 200
50 J=1; K=N-M
60 I=J
70 L=I+M; IF @(I)<@(L) GOTO 100
80 T=@(I); @(I)=@(L); @(L)=T; I=I-M; IF I<L GOTO
  100
90 GOTO 70
100 J=J+1; IF J>K GOTO 40
110 GOTO 60
200 PRINT "RESULT:"; FOR I=1 TO N; PRINT #6, @(
  I); ; NEXT I; PRINT
```

### EDITOR'S NOTE:

For those who want a nicely formatted list, and the total amount of numbers you are sorting is between 1 and 27, try this optional program modification (by F.Cornett).

```
200 CLEAR; Z=32; PRINT "RESULT:"; FOR I=1 TO N
210 IF I>9 IF I<19 CX=-23
220 IF I>18 IF I<28 CX=30
230 PRINT #1, I, "-", @(I); A=I/9; IF RM=0 CY=Z
240 NEXT I; CX=-77; CY=-40; NT=3
```

## WAVEMAKERS "MAZEMAKER"

BY

MIKE PEACE

As mentioned previously in this issue, we publish programs written by software vendors who advertise in our newsletter. This maze is far from the most complex Mike offers ("Mazemaker" is not included in his Maze Tape which sells for \$7.45 incl. Postage). If you would like to receive his

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catalog, just drop him a line with your name and address.

WAVEMAKERS, Box 94801, Schaumburg, IL 60193

This maze is a toughie! Mike has added an audio stress factor similar to the Bally "SPACE INVADERS" cartridge. Merely move Joystick in desired direction of travel.

```
1 .MIKE PEACE PRESENTS
2 .WAVEMAKER
3 .MAZEMAKER
10 :RETURN ; CLEAR ; &(9)=255; &(22)=0; Y=20;
  S=0
30 BC=RND (32)*8-1; FC=RND (32)*8
100 FOR A=-55 TO 70 STEP 15; BOX A, 0, 4, 88, 1; B
  =RND (78)-39; BOX A, B, 4, 8, 2; NEXT A
110 FOR A=-40 TO 40 STEP Y; FOR B=-55 TO 70 STEP
  P 15
120 C=PX(B, A); IF CBOX B+4, A, 5, 4, 1; MU=A
130 D=PX(B, A+10); IF DBOX B-4, A+10, 5, 4, 1; MU
  =B
140 NEXT B; NEXT A; PRINT "S"; PRINT "T"; PRINT
  "A"; PRINT "R"; PRINT "T"; PRINT ">"
145 A=-70; B=0; C=0; D=0; S=S+1; FOR T=1 TO 255
  STEP 2
150 IF &(16) C=JX(1)*3; D=JY(1)*3; IF TR(1) RU
  N
160 A=A+C; B=B+D; BOX A, B, 1, 3, 1; BOX A, B, 3, 1,
  1
165 E=PX(A+1, B+1); IF EGOTO 200
170 &(22)=0; IF A>70 GOTO 300
180 FOR Z=1 TO 175-T; NEXT Z; &(22)=255; &(17)
  =255-T; @ (T)=A; @ (T+1)=B; IF T<5 &(17)=5
185 E=PX(A+1, B+1); IF EGOTO 200
190 NEXT T
200 FOR Z=50 TO 100; &(17)=Z; NEXT Z; &(22)=0
210 FOR Z=T-2 TO 1 STEP -2; A=@(Z); B=@(Z+1); B
  OX A, B, 1, 3, 2; BOX A, B, 3, 1, 2
220 MU=RND (5)+55; NEXT Z; GOTO 145
300 NT=12; MU=49; MU=51; MU=53; MU=56; MU=53; MU
  =56; BOX 0, -32, 160, 12, 2; CY=-32
310 NT=0; PRINT " YOU MADE IT IN ", #0, S, " T
  URN"; ; IF S>1 PRINT "S"
320 IF TR(1) RUN
330 GOTO 320
```

If you input this program correctly, when you type PRINT SZ, it should equal 1021

## FLOATING POINT MATH

BY

BILL TEMPLETON

This program uses the internal calculator routine which is capable of rendering an answer with 16 digit accuracy (for more info see Cursor Issue #1 Jan 80). A fair amount of memory could have been saved by altering the program somewhat. It has been left in its original state to facilitate understanding the principles involved.



```

1 .
2 .
3 .
4 .FLOATING POINT MATH
5 .W. TEMPLETON 4-27-80
6 .
9 NT=1;BC=248;FC=135
10 CLEAR ;PRINT ;PRINT ;FOR D=0TO 53;@ (D
   )=0;NEXT D
20 PRINT "          1 = ADD
30 PRINT "          2 = SUBTRACT
40 PRINT "          3 = MULTIPLY
50 PRINT "          4 = DIVIDE
60 PRINT ;PRINT
70 INPUT "          1,2,3 OR 4?"M
80 IF M=1F="+";GOSUB 200;GOTO 300
90 IF M=2F="-";GOSUB 200;GOTO 310
100 IF M=3F="x";GOSUB 200;GOTO 320
110 IF M=4F="÷";GOSUB 200;GOTO 330
120 GOTO 70
200 CLEAR
210 PRINT "          A",;TV=F;PRINT "B = C
220 PRINT "          FORMAT = XXX.XX
230 PRINT "          USE LEADING ZEROES
240 PRINT ;PRINT "          A = ",
250 FOR A=10TO 6STEP -1;IF A=7PRINT ". ",
260 @ (A)=KP;TV=@ (A);NEXT A
270 PRINT ;PRINT "          B = ",
280 FOR B=28TO 24STEP -1;IF B=25PRINT ". ",
290 @ (B)=KP;TV=@ (B);NEXT B;PRINT ;PRINT ;
   RETURN
300 PRINT "          SUM =",; $+@ (0),@ (18),
   @ (36);GOTO 500
310 PRINT "          DIFFERENCE =",; $-@ (0),@ (18),
   @ (36);GOTO 500
320 PRINT "          PRODUCT =",; $x@ (0),@ (18),
   @ (36);GOTO 500
330 PRINT "          QUOTIENT =",; $÷@ (0),@ (18),
   @ (36)
500 Z=1;IF @ (53)="8"PRINT "- ",
510 FOR C=49TO 42STEP -1;IF C=43PRINT ". ",
515 IF @ (C)="0"IF ZGOTO 525
520 Z=0;TV=@ (C)
525 NEXT C;PRINT ;PRINT
530 PRINT "          GO AGAIN?  PRESS GO!
540 BOX -36,-32,62,10,3
550 A=KP;IF A=13RUN
560 GOTO 540

```

#### \*\*\*\*\* BLANK HIGH QUALITY TAPE

If you have wanted High Quality Computer Digital Tape Cassettes such as those RADIO SHACK sells for upwards of \$3.50 but didn't want to pay the price, try CURSOR Brand C20 Digital Tapes. 10 TAPE CASE (includes individual poly boxes) \$13.75 including postage. CURSOR, PO Box 266, N. Hollywood, CA 91603

#### CHEAP TIME SAVING DEVICE

Do you only input the short programs in CURSOR because you don't want to spend two hours inputting the long ones- only to find you made input errors and will have to spend one more hour debugging? If so, why not spare yourself all the trouble and buy your issues on tape? \$3.95 per Issue or \$7.40 for any two issues.(Includes Postage, etc.) CURSOR, PO Box 266, N. Hollywood, CA 91603

## USER GROUP MEETINGS

### DETROIT MI. AREA:

7/27/80

12:00 Noon

For further information, call:

Ron Pallack

313-629-5767

### CHICAGO IL. AREA:

No date or time set.

For further information, call:

Mike Maslowski

Home #312-654-8937

Work #312-930-3750

### CENTRAL NEW JERSEY AREA:

No date or time set.

For further information, call:

Rob Rosenhouse

44 Forestbrook Dr.

N. Plainfield, NJ 07060

### PARMA OHIO AREA:

No date or time set.

For further information, call:

Steve Wilson

216-842-4866

### WASHINGTON DC AREA:

No date or time known.

For further information, call:

Jim Coughlin

Home: 202-678-4972

Work: 800-638-8030

### DALLAS TEXAS AREA:

NO DATE OR TIME SET.

FOR FURTHER INFO, CALL:

DENNIS GALVAN

HOME#: 214-596-9147

WORK#: 214-767-4946

### LOS ANGELES AREA:

CURSOR OFFICE "OPEN HOUSE"

9:00 am to 7:00 pm

26 July 1980

59 East Orange Grove Ave., Burbank CA 91502

213-763-7701 or 213-843-7332

Everyone welcome, bring your favorite program and trade for some of ours that we haven't printed. Or just drop in and at least complain!!

We will have the full-sized ASCII keyboard hooked up along with the Computer-Ear, etc.



# CLASSIFIEDS

## VIDEO BRAIN

Video Brain Micro-computer (F8). Purchased by very quiet unassuming Video Engineer. This Micro has not been operated more than thirty hours. I have become a multiple micro owner with not enough cash to purchase peripherals.

Video Brain w/2 hand controls, power supply, RF Modulator and Instruction book. I also purchased 9 ROM game cartridges for it at the same time. I PAID \$750.00. You can get it with a money order or cashiers check for the tiny sum of \$249. EGAD what a deal!!

Send check or M.O. to: Gary Caton, 5640 Fair Ave. #21, North Hollywood, CA 91601  
Home Phone: 213-763-0734

## BALLY VIDEOCADE EDGE TAGS

### W BASEBALL, HOCKEY, TENNIS & HANDBALL ★★★★★

These edge tags help you find the video-cade (ROM game cartridge) you want. No more funbling. Indicator for number of players, tags, & instructions for all 16 videocades. \$2.95 per set. Send check or M.O. to: ROGER SAUNDERS, 304 NE 55th, Portland, OR 97213

### ●●●●● NOTE ●●●●●

Any CURSOR subscriber desiring to purchase one or more subscriptions for friends will receive a \$1.00 discount on each subscription!!! Just send CURSOR one check with the names and addresses together.

## BACK ISSUES AVAILABLE

We have had numerous requests for info regarding BACK ISSUES! There are four available:

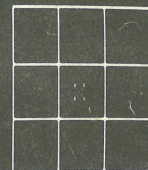
1. Jan. 80 Contains: Electric Bill Analysis; Plastic Puzzle; Instructions for adding a Full-sized ASCII Keyboard; Life Synthesis Model.
2. Feb. 80 Contains: PEEK n' POKE; Hex to Decimal Converter; String Array @ (A) Memory Locator; Instructions on how to add a Printer; Bubble Sort; Camel; Memory Map; WUMPUS.
3. Mar. 80 Contains: Three Voice Music Assembler; Star Wars Music; Chopsticks; Chicago Loop; Lace Curtain; Character Set Size Multiplier; Rotation; National Distributor Info.
4. Apr./May 80 Contains: DMA Graphics (eliminates BOX & LINE commands, allows very complex graphics!); Reference Books; Product Review (Computer Ear-Speech Recognition Unit for Bally); Music Contest; RING; Alarm Clock; Byte Saving Hints
5. June 80 Contains: Direct Color Video/Audio Circuit (for Color Monitor or VCR etc.); Galactibattle (Game); PRINT & STRING Tutorial; OTHELLO; ASCII Conversion Chart; Cursor Control Chart.

Send \$1.60 per back issue desired to CURSOR, PO Box 266, North Hollywood, CA 91603

## ANDERSON RESEARCH AND DESIGN, 1611 Lacota Lane, Burnsville, MN 55337

The Ayatollah adds a new dimension to tic-tac-toe: cheating! His eyes and mouth move as he constantly changes his mind, changes his moves and changes the rules! Can you beat him by playing fair? Can you exercise diplomatic restraint? Will you take an axe to your computer? May Allah be with you! Cassette & instructions: \$4.95. Free Catalog

SINCE YOU'RE TAKING SO LONG TO MAKE UP YOUR MIND, I'LL MOVE FIRST.



# Tic-Tac-Tollah

**CURSOR**  
P.O. BOX 266, NO. HOLLYWOOD, CA 91603

FIRST CLASS